DEPARTMENT OF LABOR AND ECONOMIC GROWTH

DIRECTOR'S OFFICE

CONSTRUCTION SAFETY STANDARDS

Filed with the Secretary of State on August 22, 2005
These rules take effect immediately upon filing with the Secretary of State

(By authority conferred on the director of the department of labor and economic growth by sections 19 and 21 of 1974 PA 154,and Executive Reorganization Order Nos. 1996-2 and 2003-1, MCL 408.1019, 408.1021, 445.2001, and 445.2011)

R 408.41610, R 408.41627, R 408.41630, R 408.41632, R 408.41633, R 408.41634, R 408.41635, R 408.41636, R 408.41637, R 408.41638, R 408.41641, R 408.41642, R 408.41643, R 408.41645, R 408.41646, R 408.41647, R 408.41650, and R 408.41653 of the Michigan Administrative Code are amended as follows:

PART 16. POWER TRANSMISSION AND DISTRIBUTION

R 408.41610 Adoption of Standards by Reference.

Rule 1610. (1) The following standards are adopted by reference in these rules and are available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado, 80112, telephone number 1-800-854-7179, website: www.global.ihs.com, at a cost as of the time of adoption of these rules, as stated in this rule:

(a) American Society of Testing and Materials standard ASTM D-120, Standard Specification for Rubber Insulating Gloves, 1977 edition. Cost: $54.00.

(b) American Society of Testing and Materials standard ASTM D-178, Standard Specification for Rubber Insulating Matting, 2004 edition. Cost: $37.00.

(c) American Society of Testing and Materials standard ASTM D-1048, Standard Specification for Rubber Insulating Blankets, 1977 edition. Cost: $46.00.

(d) American Society of Testing and Materials standard ASTM D-1049 Standard Specification for Rubber Insulating Covers, 2004 edition. Cost: $37.00.

(e) American Society of Testing and Materials standard ASTM D-1050 Standard Specification for Rubber Insulating Line Hose, 2005 edition. Cost: $37.00.

(f) American Society of Testing and Materials standard ASTM D-1051 Standard Specification for Rubber Insulating Sleeves, 2002 edition. Cost: $37.00.

(g) American Society of Testing and Materials standard ASTM F-496 Standard Specifications for In-Service Care of Insulating Gloves and Sleeves, 2004 edition. Cost: $37.00.

(h) American National Standard Institute standard ANSI Z89-2 Industrial Protective Helmets for Electrical Workers, 1971 edition. Cost: $25.00.

(i) American Society of Testing and Materials standard ASTM B-117 Standard Method of Salt Spray (Fog) Testing, 1979 edition. Cost: $40.00.

These standards are available for inspection at the Michigan Department of Labor and Economic Growth, MIOSHA Standards Section, 7150 Harris Drive, Lansing, Michigan 48909-8143.

(2) The following Michigan occupational safety and health standards are referenced in these rules. Up to 5 copies of these standards may be obtained at no charge from the Michigan Department of Labor and Economic Growth, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143 or via the internet at website: www.michigan.gov/mioshastandards. For quantities greater than 5, the cost, as of the time of adoption of these rules, is 4 cents per page.

(a) Part 6 Personal Protective Equipment, R 408.40601 et seq.

(b) Part 8 Handling and Storage of Materials, being R 408.40801 et seq.

(c) Part 9 Excavation, Trenching, and Shoring, being R 408.40901 et seq.
(d) Part 10 Lifting and Digging Equipment, R 408.41001 et seq.
(e) Part 11. Fixed and Portable Ladders, being R 408.41101 et seq.
(f) Part 13 Mobile Equipment, R 408.41301 et seq.
(g) Part 18 Fire Protection and Prevention, being R 408.41801 et seq.
(h) Part 19, Tools, R 408.41901 et seq.
(i) Part 22 Signals, Signs, Tags, and Barricades, R 408.42201 et seq.
(j) Part 32 Aerial Work Platforms, R 408.43201 et seq.
(k) Part 45 Fall Protection, R 408.44501 et seq.

R 408.41627 Clearances.

Rule 1627. (1) The following provisions of subdivision (a), (b), or (c) of this subrule shall be observed:

(a) An employee shall not be permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in table 1, unless 1 of the following is complied with:

(i) The employee is insulated or guarded from the energized part. Gloves or gloves with sleeves rated for the voltage involved, which are provided for pursuant to ~~rules 617 and 641 of~~ construction safety standard Part 6 Personal Protective Equipment, ~~being~~ R 408.40617 and R 408.40641 ~~of the Michigan Administrative Code~~, shall be considered insulation of the employee from the energized part. The work method on parts energized above 5,000 volts phase to ground shall be with rubber gloves and sleeves out of an insulated bucket, by the use of hot line tools, or with rubber gloves and sleeves in conjunction with a factory-made and approved insulated platform that provides a method of belting off other than to the pole or structure. This rule does not apply to the bare hand technique.

(ii) The energized part is insulated or guarded from the employee and any other conductive object at a different potential.

(iii) The employee is isolated, insulated, or guarded from any other conductive object, as during live-line, bare-hand work.

(b) The minimum working distance and minimum clear hot stick distances stated in table 1 shall not be violated. The minimum clear hot stick distance is that for the use of live-line tools held by linemen when performing live-line work.

(c) Conductor support tools, such as line sticks, strain carriers, and insulator cradles, may be used provided that the clear insulation is at least as long as the insulator string or the minimum distance specified in table 1 for the operating voltage.

(2) Table 1 reads as follows:

Table 1
Alternating Current - Minimum Distances

Voltage Range (Phase to Phase) Kilovolt	Minimum Working and Clear Hot Stick Distance
2.1 to 15	2 ft. 0 in.
15.1 to 35	2 ft. 4 in.
35.1 to 46	2 ft. 6 in.
46.1 to 72.5	3 ft. 0 in.
72.6 to 121	3 ft. 4 in.
138 to 145	3 ft. 6 in.
161 to 169	3 ft. 8 in.
230 to 242	5 ft. 0 in.
345 to 362	*7 ft. 0 in.
500 to 552	*11 ft. 0 in.
700 to 765	*15 ft. 0 in.
* Note: For 345-362 kv, 500-552 kv., and 700-765 kv., the minimum working distance and the minimum clear hot stick distance may be reduced provided that such distances are not less than	

the shortest distance between the energized part and a grounded surface.

R 408.41630 Work over and near water.

Rule 1630. When crews are engaged in work over or near water and when danger of drowning exists, suitable protection shall be provided for pursuant to ~~rules 617 and 636 of~~ construction safety standard Part 6 Personal Protective Equipment, ~~being~~ R 408.40617 and R 408.40636. ~~of the Michigan Administrative Code.~~

R 408.41632 Rubber protective equipment; certification; use and storage.

Rule 1632. (1) Rubber insulating gloves, rubber matting for use around electrical apparatus, rubber insulating blankets, rubber insulating covers, rubber insulating line hose, and rubber insulating sleeves, when purchased after the effective date of this part, shall bear a permanent mark to show the manufacturer's name or trademark and certification of compliance with the appropriate ~~ANSI/~~ **American Society of Testing and Materials (**ASTM**)** standard as listed in table 2, **which are adopted by reference in R 408.41610.** ~~The following standards listed in table 2 are incorporated herein by reference and may be inspected at the Lansing office of the department of consumer and industry services. The ANSI/ASTM standards may be purchased as a unit from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the American Society of Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 10103. Each of these standards may also be purchased from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30015, Lansing, Michigan 48909, at a cost of $4.00 each.~~

(2) Table 2 reads as follows:

Table 2		
Item	~~ANSI/~~ASTM	~~Cost~~ **Edition**
Standard Specification for Rubber Insulating Gloves	D-120~~-77~~	~~$4.00~~ **1977**
Standard Specification for Rubber **Insulating Matting** ~~mating for use around electrical apparatus~~	D-178-~~77~~	~~$4.~~00 **2004**
Standard Specification for Rubber Insulating Blankets	D-1048~~-77~~	~~$4.00~~ **1977**
Standard Specification for Rubber Insulating Covers	D-1049~~-79~~	~~$4.00~~ **2004**
Standard Specification for Rubber Insulating Line Hose	D-1050~~-77~~	~~$4.00~~ **2005**
Standard Specification for Rubber Insulating Sleeves	D-1051~~-77~~	~~$4.00~~ **2002**

(3) Material other than rubber that offers equivalent or greater protection may be used if the material is certified to meet the appropriate ANSI/ASTM standard tests.

(4) Rubber insulating sleeves and blankets shall be given a visual inspection and an electrical test by a trained employee or outside service within 12 months after purchase and not less than once each 12-month period thereafter.

(5) Rubber insulating gloves shall be given an electrical test by a trained employee or outside service at intervals as prescribed in **the American Society of Testing and Materials** ~~ANSI/~~ **(**ASTM**)** F496~~-78~~, **2004 edition**, Standard Specifications for ~~The~~ In-Service Care of Insulating Gloves and Sleeves, which is **adopted by reference in R 408.41610.** ~~incorporated herein by reference and may be inspected at the Lansing office of the Department of Consumer and Industry Services. This standard may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the American Society of Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 10103, at a cost of $4.00. The standard may also be purchased from the Safety Standards Division, Bureau of Safety and Regulation, Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909, a cost of $4.00.~~

(6) The maximum interval for the electrical retesting of gloves required by ~~ANSI/~~ASTM F496~~-78~~, **2004 edition,** is shown in table 3.

(7) Table 3 reads as follows:

TABLE 3 Electrical Retesting of Gloves

Description	Maximum Interval Between Tests
1. Gloves, in use	6 months
2. Gloves, in use by telecommunication industry	9 months
3. Gloves, tested but not issued for service	12 months
NOTE: THE INTERVAL BETWEEN TESTS SHOULD TAKE INTO CONSIDERATION WORK PRACTICES AND TEST EXPERIENCE.	

(8) The equipment shall be dated or coded with the date of purchase or issuance and the date of each periodic test. The electrical test shall be performed in accordance with the applicable ~~American national standards institute or~~ American Society of Testing and Materials standard listed in table 2.

(9) Equipment listed in table 2 shall be visually inspected for cracks, cuts, punctures, and thin spots before each use. Where insulating gloves are required and used, they shall be manually air tested daily before starting work.

(10) Equipment not meeting the electrical test requirements, visual inspection, or manual air test for flaws, scuffs, snags, punctures, and foreign substances, such as oil, dirt, or grease, shall be removed from service.

(11) An insulated blanket, glove, or sleeve shall be capable of withstanding the voltage to which it may be subjected.

(12) Insulating gloves, sleeves, and blankets shall be kept as free as possible from ozone, chemicals, heat, oils, solvents, damaging vapors, fumes, electrical discharges, and sunlight. The gloves, sleeves, and blankets shall be stored in a bag, box, container, or compartment that is designed and used exclusively for their storage and shall not be folded, creased, or compressed.

R 408.41633 Head protection.

Rule 1633. (1) A class B helmet for the protection of an employee exposed to voltages of more than 600 volts shall bear a certification by the manufacturer that the helmet is as prescribed in **the American National Standard Institute (**ANSI**)** standard, Z89.2, 1971 **edition**, Industrial Protective Helmets For Electrical Workers, which is **adopted by reference in R 408.41610.** ~~incorporated herein by reference and may be inspected at the Lansing office of the Department of Consumer and Industry Services. This standard may be purchased at a cost of $3.75 from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.~~

(2) A helmet provided for and as prescribed in ~~rules 617 and 621 of~~ construction safety standard Part 6 Personal Protective Equipment, ~~being~~ R 408.40617 and R 408.40621, ~~of the Michigan Administrative Code,~~ shall be used to protect the employee where a hazard or risk of injury exists from falling or flying objects or particles or from other harmful contacts or exposures.

(3) Where there is exposure to electrical contact, helmet liners or wind guards shall not be in contact with the outside shell of the helmet.

R 408.41634 Lineman's belt**,** ~~and~~ safety strap**, lifelines, lanyards, and personal climbing equipment**; use.

Rule 1634. (1) A lineman's belt and safety strap shall be provided as prescribed in construction safety standard Part 6 Personal Protective Equipment, ~~being~~ R 408.40601 et seq. ~~of the Michigan Administrative Code~~, and shall be worn by an employee working on a pole, tower, or other such structure, except where use of the belt and strap creates a greater hazard. If use of the belt and strap creates a greater hazard, other equivalent safeguards shall be used.

(2) A lineman's belt and safety strap shall not be used in a manner that subjects them to a shock load, unless the belt and strap are in compliance with the requirements of a safety belt and lanyard prescribed in construction safety standard Part 45 Fall Protection, ~~being~~ R 408.44501 et seq. ~~of the Michigan Administrative Code.~~

(3) A lineman's belt**,** ~~and~~ safety strap, **lifelines, lanyards, and personal climbing equipment** shall be inspected before use each day and shall be replaced or repaired if found to be defective.

(4) Lifelines and lanyards shall comply with the provisions of 29 CFR §1926.502, which is adopted by reference in R 408.44502 of construction safety standard Part 45 Fall Protection.

R 408.41635 Lineman's belt and safety strap; construction.

Rule 1635. A lineman's belt and safety strap shall meet all of the following criteria:

(a) Hardware for a lineman's belt, safety belt, and safety strap shall be dropforged or pressed steel with a corrosion-resistant finish. The surface shall be smooth and free of sharp edges.

(b) The hardware shall be constructed to withstand the following tests:

(i) Buckles, 2,000-pound tensile test with a permanent deformation of not more than 1/64 inch.

(ii) D rings, 5,000-pound tensile test without cracking or breaking.

(iii) Snaphooks, 5,000-pound tensile test without distortion which would release the keeper. The keeper shall have a spring tension that does not allow the keeper to open with a weight of not less than 4 pounds when the weight is supported on the keeper against the end of the nose.

(iv) The corrosion-resistant finish shall meet the requirements of the ~~ASTM B117-73 (1979)~~ 50-hour test published in **the American Society of Testing and Materials (ASTM) standard B-117, 1979 edition, Standard Method of Salt Spray (Fog) Testing, which is adopted by reference in R 408.41610.** ~~1973 and approved in 1979 without change, which is incorporated herein by reference and may be inspected at the Lansing office of the department of consumer and industry services. This standard may be purchased at a cost of $4.00 from the American Society of Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 10103, or from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.~~

(c) The cushion part of a lineman's belt shall meet all of the following requirements:

(i) It shall contain no exposed rivets on the inside.

(ii) It shall be not less than 3 inches wide and not less than 5/32 inch thick**, if made of leather**.

(iii) It shall have pocket tabs that extend not less than 1 1/2 inches down and 3 inches back of the inside of the circle of each D ring for riveting on plier or tool pockets. On shifting D belts, the measurement for pocket tabs shall be taken when the D ring section is centered.

(d) A maximum of 4 tool loops shall be so located on the lineman's belt that 4 inches of the lineman's belt in the center of the back, measured from D ring to D ring, are free of tool loop and other attachments.

(e) Copper, steel, or equivalent liners shall be used around the bar of D rings to prevent wear between the D ring and the leather or fabric enclosing them.

(f) All stitching shall be not less than 42-pound weight nylon or equivalent thread and shall be lockstitched. Stitching parallel to an edge shall be not less than 3/16 inch from the edge of the narrowest member caught by the thread. **The use of cross stitching on leather is prohibited.**

R 408.41636 Ladders.

Rule 1636. (1) A portable metal or conductive ladder shall be as prescribed in construction safety standard Part 11 Fixed and Portable Ladders, ~~being~~ R 408.41101 et seq.**,** ~~of the Michigan Administrative Code~~ and shall not be used near energized lines or equipment except as may be necessary in specialized work, such as in high voltage substations where nonconductive ladders might present a greater hazard than conductive ladders.

(2) A portable metal or conductive ladder shall be prominently marked as conductive and all necessary precautions shall be taken when used in specialized work as prescribed in subrule (1) of this rule.

(3) A hook or other type of ladder used in structures shall be positively secured to prevent the ladder from being accidentally displaced.

R 408.41637 Live-line tools.

Rule 1637. A live-line tool shall be as prescribed in R 408.41969 of construction safety standard Part 19 Tools, ~~being~~ R 408.41901 et seq. ~~of the Michigan Administrative Code.~~

R 408.41638 Handtools.

Rule 1638. **(1)** A portable or powered handtool shall be as prescribed in construction safety standard Part 19 Tools, ~~being~~ R 408.41901 et seq. ~~of the Michigan Administrative Code.~~

(2) All hydraulic tools which are used on or around energized lines or equipment shall use nonconducting hoses having adequate strength for the normal operating pressures.

(3) All pneumatic tools which are used on or around energized lines or equipment shall have both of the following:

(a) An accumulator on the compressor to collect moisture.

(b) Nonconducting hoses having adequate strength for the normal operating pressures.

R 408.41641 Aerial lifts.

Rule 1641. (1) The provisions of construction safety standard Part 32 Aerial Work Platforms, ~~being~~ R 408.43201 et seq., ~~of the Michigan Administrative Code~~ apply to the utilization of aerial lifts.

(2) When working near energized lines or equipment, aerial lift trucks shall be grounded or barricaded and considered as energized equipment, or the aerial lift truck shall be insulated from the work being performed.

(3) Equipment or material shall not be passed between a pole or structure and an aerial lift while an employee working from the basket is within reaching distance of energized conductors or equipment that are not covered with insulating protective equipment.

R 408.41642 Derrick trucks, cranes, and other lifting equipment.

Rule 1642. (1) All derrick trucks, cranes, and other lifting equipment shall comply with construction safety standards Part 10 Lifting and Digging Equipment, **R 408.41001(a) et seq.,** and Part 13 Mobile Equipment, ~~being R 408.41001(a) et seq. and~~ R 408.41301 et seq. ~~of the Michigan Administrative Code~~, except:

(a) As stated in Part 10 relating to clearance (for clearances in this rule see table 1).

(b) That a derrick truck (electric line truck) shall not be required to comply with §1926.550(a)(7)(vi), (a)(17), (b)(2), and (e), as adopted by reference in R 408.41001.

(2) With the exception of equipment certified for work on the proper voltage, mechanical equipment shall not be operated closer to any energized line or equipment than the clearances set forth in R 408.41627 of this part, unless 1 of the following is complied with:

(a) An insulated barrier is installed between the energized part and the mechanical equipment.

(b) The mechanical equipment is grounded.

(c) The mechanical equipment is insulated.

(d) The mechanical equipment is considered energized.

R 408.41643 Material handling.

Rule 1643. (1) Prior to unloading steel, poles, cross arms, and similar material, the load shall be thoroughly examined to ascertain if the load has shifted, binders or stakes have broken, or the load is otherwise hazardous to employees.

(2) During pole hauling operations, all loads shall be secured to prevent displacement and a red flag shall be displayed at the trailing end of the longest pole.

(3) Precautions shall be exercised to prevent the blocking of roadways or the endangering of other traffic.

(4) When hauling poles during the hours of darkness, illuminated warning devices shall be attached to the trailing end of the longest pole.

(5) Materials or equipment shall not be stored under energized bus, energized lines, or near energized equipment, if it is practical to store them elsewhere.

(6) When materials or equipment are stored under energized lines or near energized equipment, applicable clearances shall be maintained as stated in table 1, and extraordinary caution shall be exercised when moving materials near such energized equipment.

(7) Where hazards to employees exist, tag lines or other suitable devices shall be used to control loads being handled by hoisting equipment.

(8) During construction or repair of oil filled equipment the oil may be stored in temporary containers other than those required in construction safety standard Part 18 Fire Protection and Prevention, ~~being~~ R 408.41801 et seq. ~~of the Michigan Administrative Code~~, such as pillow tanks.

(9) During framing operations, employees shall not work under a pole or a structure suspended by a crane, A-frame, or similar equipment unless the pole or structure is adequately supported.

(10) The hoist rope shall not be wrapped around the load. This provision does not apply to electric construction crews when setting or removing poles.

R 408.41645 Overhead lines.

Rule 1645. (1) When working on or with overhead lines, the provisions of subrules (2) to (10) of this rule shall be complied with in addition to other applicable provisions of this part.

(2) Prior to climbing poles, ladders, scaffolds, or other elevated structures, an inspection shall be made to determine that the structures are capable of sustaining the additional or unbalanced stresses to which they will be subjected.

(3) Where poles or structures may be unsafe for climbing, they shall not be climbed until made safe by guying, bracing, or other adequate means.

(4) Before installing or removing wire or cable, strains to which poles and structures will be subjected shall be considered and necessary action taken to prevent failure of supporting structures.

(5) When setting, moving, or removing poles using cranes, derricks, gin poles, a frames, or other mechanized equipment near energized lines or equipment, precautions shall be taken to avoid contact with energized lines or equipment, except in bare-hand, live-line work**, or where barriers or protective devices are used**.

(6) Equipment and machinery operating adjacent to energized lines or equipment shall be in compliance with ~~subrule (2) of~~ ~~R 408.41640.~~ **R 408.41642(2).**

R 408.41646 Metal tower construction.

Rule 1646. (1) When working in an excavation for pad- or pile-type footings in excess of 5 feet deep, the excavation shall be either sloped to the angle of repose or shored as prescribed in construction safety standard Part 9 Excavation, Trenching and Shoring, ~~being~~ R 408.40901 et seq. ~~of the Michigan Administrative Code.~~ Ladders shall be provided for access to pad- or pile-type footing excavations in excess of 4 feet.

(2) Provisions shall be made for cleaning out auger-type footings without requiring an employee to enter the footing unless shoring is used to protect the employee.

(3) A designated employee shall be used in directing mobile equipment adjacent to footing excavations.

(4) A person shall not be permitted to remain in the footing while equipment is being spotted for placement.

(5) Where necessary to assure the stability of mobile equipment, the location of use for such equipment shall be graded and leveled.

(6) Tower assembly shall be carried out with a minimum exposure of employees to falling objects when working at 2 or more levels on a tower.

(7) Guy lines shall be used as necessary to maintain sections or parts of sections in position and to reduce the possibility of tipping.

(8) Members and sections being assembled shall be adequately supported.

(9) When assembling and erecting towers, the provisions of subdivisions (a), (b), and (c) of this subrule shall be compiled with:

(a) The construction of transmission towers and the erecting of poles, hoisting machinery, site preparation machinery, and other types of construction machinery shall conform to the applicable requirements of this part.

(b) A person shall not be permitted under a tower which is in the process of erection or assembly, except as may be required to guide and secure the section being set.

(c) When erecting towers using hoisting equipment adjacent to energized transmission lines, the lines shall be deenergized when practical. If the lines are not deenergized, extraordinary caution shall be exercised to maintain the minimum clearance distances required by R 408.41627 of this part.

(10) Erection cranes shall be set on firm level foundations and when the cranes are so equipped, outriggers shall be used.

(11) Tag lines shall be utilized to maintain control of tower sections being raised and positioned, except where the use of such lines would create a greater hazard.

(12) The loadline shall not be detached from a tower section until the section is adequately secured.

(13) Except during emergency restoration procedures, erection shall be discontinued in the event of high wind or other adverse weather conditions which would make the work hazardous.

(14) Equipment and rigging shall be regularly inspected and maintained in safe operating condition.

(15) Adequate traffic control shall be maintained when crossing highways and railways with equipment as required by construction safety standard Part 22 Signals, Signs, Tags and Barricades, ~~being~~ R 408.42201 et seq. ~~of the Michigan Administrative Code.~~

(16) A designated employee shall be utilized to determine that required clearance is maintained in moving equipment under or near energized lines.

R 408.41647 Stringing or removing de-energized conductors.

Rule 1647. (1) When stringing or removing deenergized conductors, the provisions of subrules (2) to (18) of this rule shall be complied with.

(2) Prior to stringing operations, a briefing for all employees who will be performing the work shall be held setting forth the plan of operation and specifying the type of equipment to be used, grounding devices and procedures to be followed, crossover methods to be employed, and the clearance authorization required.

(3) Where there is a possibility of the conductor accidentally contacting an energized circuit or receiving a dangerous induced voltage buildup, to further protect the employee from the hazards of the conductor, the conductor being installed or removed shall be grounded or provisions made to insulate or isolate the employee.

(4) If the existing line is de-energized, proper clearance authorization shall be secured and the line grounded on both sides of the crossover or the line being strung or removed shall be considered and worked as energized.

(5) When crossing over energized conductors in excess of 600 volts, rope nets or guard structures shall be installed unless provision is made to isolate or insulate the workman or the energized conductor. Where practical, the automatic reclosing feature of the circuit-interrupting device shall be made inoperative. In addition, the line being strung shall be grounded on either side of the crossover or considered and worked as energized.

(6) Conductors being strung in or removed shall be kept under positive control by the use of adequate tension reels, guard structures, tielines, or other means to prevent accidental contact with energized circuits.

(7) Guard structure members shall be sound and of adequate dimension and strength and adequately supported.

(8) Catch-off anchors, rigging, and hoists shall be of ample capacity to prevent loss of the lines.

(9) The manufacture’s load rating shall not be exceeded for stringing lines, pulling lines, sock connections, and all load-bearing hardware and accessories.

(10) Pulling lines and accessories shall be inspected regularly and replaced or repaired when damaged or when dependability is doubtful. The provisions of ~~R 408.40843(3)~~ **R 408.40832,** of construction safety standard Part 8 Handling and Storage of Material, shall not apply.

(11) Conductor grips shall not be used on wire rope unless designed for this application.

(12) While the conductor or pulling line is being pulled (in motion), employees shall not be permitted directly under overhead operations or on the crossarm.

(13) A transmission clipping crew shall have a minimum of 2 structures clipped in between the crew and the conductor being sagged. When working on bare conductors, clipping and tying crews shall work between grounds at all times. The grounds shall remain intact until the conductors are clipped in, except on dead-end structures.

(14) Except during emergency restoration procedures, work from structures shall be discontinued when adverse weather, such as high wind or ice on structures, makes the work hazardous.

(15) Stringing and clipping operations shall be discontinued during the progress of an electrical storm in the immediate vicinity.

(16) Reel-handling equipment, including pulling and braking machines, shall have ample capacity, operate smoothly, and be leveled and aligned in accordance with the manufacturer's operating instructions.

(17) Reliable communications between the reel tender and pulling rig operator shall be provided.

(18) Each pull shall be snubbed or dead-ended at both ends before subsequent pulls.

R 408.41650 Underground lines.

Rule 1650. (1) Appropriate warning signs shall be promptly placed when covers of manholes, hand holes, or vaults are removed. What is an appropriate warning sign is dependent upon the nature and location of the hazards involved.

(2) Before an employee enters a street opening, such as a manhole or an unvented vault, it shall be promptly protected with a barrier, temporary cover or other suitable guard.

(3) When work is to be performed in a manhole or unvented vault:

(a) Entry shall not be permitted unless forced ventilation is provided or the atmosphere is found to be safe by testing for oxygen deficiency and the presence of explosive gases or fumes.

(b) Where unsafe conditions are detected, by testing or other means, the work area shall be ventilated and otherwise made safe before entry.

(c) Provisions shall be made for an adequate continuous supply of air.

(4) While work is being performed in manholes, an employee shall be available in the immediate vicinity to render emergency assistance as may be required. This requirement does not preclude the employee in the immediate vicinity from occasionally entering a manhole to provide assistance other than emergency. This requirement also does not preclude a qualified employee, working alone, from entering, for brief periods of time, a manhole where energized cables or equipment are in service, for the purpose of inspection, housekeeping, taking readings, or similar work if such work is performed safely.

(5) When open flames must be used or smoking is permitted in manholes, extra precautions shall be taken to provide adequate ventilation.

(6) Before using open flames in a manhole or excavation in an area where combustible gases or liquids may be present, such as near a gasoline service station, the atmosphere of the manhole or excavation shall be tested and found safe or cleared of the combustible gases or liquids.

(7) During excavation or trenching, in order to prevent the exposure of employees to the hazards created by damage to dangerous underground facilities, efforts shall be made to determine the location of such facilities and work conducted in a manner designed to avoid damage.

(8) Trenching and excavation operations shall comply with construction safety standard Part 9 Excavation Trenching and Shoring, ~~being~~ R 408.40901 et seq. ~~of the Michigan Administrative Code.~~

(9) When underground facilities (electric, gas, water, telephone, or other) are exposed, they shall be protected as necessary to avoid damage.

(10) Where multiple cables exist in an excavation, cables other than the one being worked on shall be protected as necessary.

(11) When multiple cables exist in an excavation, the cable to be worked on shall be identified by electrical means unless its identity is obvious by reason of distinctive appearance.

(12) Before cutting into a cable or opening a splice, the cable shall be identified and verified by the employer or authorized representative to be the proper cable.

(13) When working on buried cable or on cable in manholes, metallic sheath continuity shall be maintained by bonding across the opening or by equivalent means.

R 408.41653 Barricades and barriers.

Rule 1653. (1) Barricades or barriers shall be installed to prevent accidental contact with energized lines or equipment.

(2) Where appropriate, signs indicating the hazard shall be posted near the barricade or barrier. These signs shall comply with construction safety standard Part 22 Signals, Signs, Tags and Barricades, ~~being~~ R 408.42201 et seq. ~~of the Michigan Administrative Code.~~